



SEQUENCE LISTING

<110> DEHESH et al.

<120> Engineering Beta Ketoacyl ACP Synthase for Novel Substrate Specificity

<130> 16516.117

<140> US 09/591,279

<141> 2000-06-09

<150> US 60/138,308

<151> 1999-06-09

<160> 46

<170> PatentIn version 3.0

<210> 1

<211> 36

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer I108F Sense

<400> 1

gtgccgcaat tggatccggg tttggcggcc tcggac

36

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<211> 36

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<213> Artificial Sequence

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<223> Oligonucleotide Primer I108F Antisense

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gtccgaggcc gccaaaccg gatccaattg cggcac

36

<210> 3

<211> 42

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<213> Artificial Sequence

<220>

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<223> Oligonucleotide Primer I108L Sense

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gtgccgcaat tggctccggg cttggaggcc tcggactgat cg 42

<210> 4
<211> 42
<212> DNA
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<400> 4
cgatcagtcc gaggcctcca agcccggagc caattgcggc ac 42

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<211> 36
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<223> Oligonucleotide Primer A193I Sense

<400> 5
gcaggtggcg ccgagaaaat cagtacgccg ctgggc 36

<210> 6
<211> 35
<212> DNA
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<220>
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<400> 6
gcccagcggc gtactgattt tctcggcgcc acctg 35

<210> 7
<211> 37
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<213> Artificial Sequence

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<223> Oligonucleotide Primer A193M Sense

<400> 7
ggtggcgag agaaaatgag tactccgctg ggcgttg 37

<210> 8
<211> 37
<212> DNA
<213> Artificial Sequence

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<223> Oligonucleotide Primer A193M Antisense

<400> 8
caacgcccag cggagtactc attttctctg cgccacc 37

<210> 9
<211> 50
<212> DNA
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<220>
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<223> Oligonucleotide Primer I108A,L111A, I114A Sense

<400> 9
gcaattggct cgggggctgg cggcgccgga ctggccgaag aaaaccacac 50

<210> 10
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<400> 10
gtgtggtttt cttcggccag tccggcgccg ccagccccgg agccaattgc 50

<210> 11
<211> 28
<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer L111A Sense

<400> 11

gggattggcg ggcgcggact gatcgaag

28

<210> 12

<211> 28

<212> DNA

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<223> Oligonucleotide Primer L111A Antisense

<400> 12

cttcgatcag tccggcgccg ccaatccc

28

<210> 13

<211> 34

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide Primer F133A Sense

<400> 13

gacagccca ttcgcggtac cgtcaacgat tgtg

34

<210> 14

<211> 34

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<400> 14

cacaatcggt gacggtaccg cgaatgggct gatc

34

<210> 15
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
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 <223> Oligonucleotide Primer L197A Sense

<400> 15
 gagaaagcca gtactccggc gggcggttggg gg 32

<210> 16
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 <212> DNA
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<220>
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 <222> ()..()
 <223> Oligonucleotide Primer L197A Antisense

<400> 16
 ccaccaacgc ccgccggagt actggctttc tc 32

<210> 17
 <211> 56
 <212> DNA
 <213> Artificial sequence

<220>
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 <223> Self annealed oligonucleotide primer

<400> 17
 cgcgatttaa atggcgcgcc ctgcaggcgg ccgcctgcag ggcgcgccat ttaaatt 56

<210> 18
 <211> 366
 <212> DNA
 <213> Cuphea hookeriana

<400> 18
 ctgagatctg tcgacatggc gaccgcttct cgcattggtg cgtccccctt ctgtacgtgg 60

ctcgtagctg catgcatgcc cacttcatcc gacaacgacc cagttccct tccccacaag 120

cggtccgccc tctccgctcg ccggaggact ctctctccc attgctccct ccgaggatcc 180

accttccaat gcctcgatcc ttgcaaccag caacgcttcc tcggggataa cggattcgct 240
 tccctcttcg gatccaagcc tcttcgttca aatcgcggcc acctgaggct cggccgcact 300
 tcccattccg gggagggtcat ggctgtggct atgcaacctg cacaggaagt ctccacaaga 360
 tctgtc 366

<210> 19
 <211> 431
 <212> PRT
 <213> Arabidopsis thaliana

<400> 19

Ile Ser Ala Ser Ala Ser Thr Val Ser Ala Pro Lys Arg Glu Thr Asp
 1 5 10 15
 Pro Lys Lys Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Cys
 20 25 30
 Gly Asn Asp Val Asp Ala Tyr Tyr Glu Lys Leu Leu Ser Gly Glu Ser
 35 40 45
 Gly Ile Ser Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg
 50 55 60
 Phe Gly Gly Gln Ile Arg Gly Phe Ser Ser Glu Gly Tyr Ile Asp Gly
 65 70 75 80
 Lys Asn Glu Arg Arg Leu Asp Asp Cys Leu Lys Tyr Cys Ile Val Ala
 85 90 95
 Gly Lys Lys Ala Leu Glu Ser Ala Asn Leu Gly Gly Asp Lys Leu Asn
 100 105 110
 Thr Ile Asp Lys Arg Lys Ala Gly Val Leu Val Gly Thr Gly Met Gly
 115 120 125
 Gly Leu Thr Val Phe Ser Glu Gly Val Gln Asn Leu Ile Glu Lys Gly
 130 135 140
 His Arg Arg Ile Ser Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met
 145 150 155 160
 Gly Ser Ala Leu Leu Ala Ile Asp Leu Gly Leu Met Gly Pro Asn Tyr
 165 170 175
 Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala
 180 185 190
 Ala Asn His Asn His Arg Gly Glu Ala Asp Met Met Ile Ala Gly Gly
 195 200 205
 Thr Glu Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys
 210 215 220

Arg Ala Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro
 225 230 235 240
 Trp Asp Lys Ala Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val
 245 250 255
 Leu Val Met Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile
 260 265 270
 Val Ala Glu Tyr Leu Gly Gly Ala Val Asn Cys Asp Ala His His Met
 275 280 285
 Thr Asp Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Arg
 290 295 300
 Cys Leu Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn
 305 310 315 320
 Ala His Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala
 325 330 335
 Ile Lys Lys Val Phe Lys Ser Thr Ser Gly Ile Lys Ile Asn Ala Thr
 340 345 350
 Lys Ser Met Ile Gly His Cys Leu Gly Ala Ala Gly Gly Leu Glu Ala
 355 360 365
 Ile Ala Thr Val Lys Ala Ile Asn Thr Gly Trp Leu His Pro Ser Ile
 370 375 380
 Asn Gln Phe Asn Pro Glu Gln Ala Val Asp Phe Asp Thr Val Pro Asn
 385 390 395 400
 Glu Lys Lys Gln His Glu Val Asp Val Ala Ile Ser Asn Ser Phe Gly
 405 410 415
 Phe Gly Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
 420 425 430

<210> 20
 <211> 429
 <212> PRT
 <213> Brassica napus

<400> 20

Ala Ser Ser Ser Ala Val Ser Ala Pro Lys Arg Glu Thr Asp Pro Lys
 1 5 10 15
 Lys Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Phe Gly Asn
 20 25 30
 Asp Val Asp Ala Tyr Tyr Glu Lys Leu Leu Ser Gly Glu Ser Gly Ile
 35 40 45
 Ser Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Gly

50					55					60						
Gly	Gln	Ile	Arg	Gly	Phe	Ser	Ser	Glu	Gly	Tyr	Ile	Asp	Gly	Lys	Asn	
65					70					75					80	
Glu	Arg	Arg	Leu	Asp	Asp	Cys	Leu	Lys	Tyr	Cys	Ile	Val	Ala	Gly	Lys	
				85					90					95		
Lys	Ala	Leu	Glu	Ser	Ala	Asn	Leu	Gly	Gly	Asp	Lys	Leu	Asn	Thr	Ile	
			100					105					110			
Asp	Lys	Gln	Lys	Ala	Gly	Val	Leu	Val	Gly	Thr	Gly	Met	Gly	Gly	Leu	
		115					120					125				
Thr	Val	Phe	Ser	Asp	Gly	Val	Gln	Ala	Leu	Ile	Glu	Lys	Gly	His	Arg	
	130					135					140					
Arg	Ile	Ser	Pro	Phe	Phe	Ile	Pro	Tyr	Ala	Ile	Thr	Asn	Met	Gly	Ser	
145						150					155				160	
Ala	Leu	Leu	Ala	Ile	Asp	Leu	Gly	Leu	Met	Gly	Pro	Asn	Tyr	Ser	Ile	
				165					170					175		
Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Tyr	Cys	Phe	Tyr	Ala	Ala	Ala	Asn	
			180					185					190			
His	Ile	Arg	Arg	Gly	Glu	Ala	Asp	Met	Met	Ile	Ala	Gly	Gly	Thr	Glu	
		195					200					205				
Ala	Ala	Ile	Ile	Pro	Ile	Gly	Leu	Gly	Gly	Phe	Val	Ala	Cys	Arg	Ala	
	210					215					220					
Leu	Ser	Gln	Arg	Asn	Asp	Asp	Pro	Gln	Thr	Ala	Ser	Arg	Pro	Trp	Asp	
225						230					235				240	
Lys	Gln	Arg	Asp	Gly	Phe	Val	Met	Gly	Glu	Gly	Ala	Gly	Val	Leu	Val	
				245					250					255		
Met	Glu	Ser	Leu	Glu	His	Ala	Met	Lys	Arg	Gly	Ala	Pro	Ile	Val	Ala	
			260					265					270			
Glu	Tyr	Leu	Gly	Gly	Ala	Val	Asn	Cys	Asp	Ala	His	His	Met	Thr	Asp	
		275					280					285				
Pro	Arg	Ala	Asp	Gly	Leu	Gly	Val	Ser	Ser	Cys	Ile	Glu	Ser	Cys	Leu	
						295					300					
Glu	Asp	Ala	Gly	Val	Ser	Pro	Glu	Glu	Val	Asn	Tyr	Ile	Asn	Ala	His	
305						310					315				320	
Ala	Thr	Ser	Thr	Leu	Ala	Gly	Asp	Leu	Ala	Glu	Ile	Asn	Ala	Ile	Lys	
				325					330					335		
Lys	Val	Phe	Lys	Ser	Thr	Ser	Gly	Ile	Lys	Ile	Asn	Ala	Thr	Lys	Ser	
			340					345					350			
Met	Ile	Gly	His	Cys	Leu	Gly	Ala	Ala	Gly	Gly	Leu	Glu	Ala	Ile	Ala	

355	360	365
Thr Val Lys Ala Ile Asn Thr Gly Trp Leu His Pro Ser Ile Asn Gln 370 375 380		
Phe Asn Pro Glu Pro Ala Val Asp Phe Asp Thr Val Ala Asn Glu Lys 385 390 395 400		
Lys Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly 405 410 415		
Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro 420 425		
<210> 21		
<211> 350		
<212> PRT		
<213> Cuphea hookeriana		
<400> 21		
Ser Ser Thr Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly 1 5 10 15		
Cys Arg Asn Ser Ala Arg Ala Asp Leu Gly Ala Asp Arg Leu Ser Lys 20 25 30		
Ile Asp Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly 35 40 45		
Leu Thr Val Phe Ser Asp Gly Val Gln Ser Leu Ile Glu Lys Gly His 50 55 60		
Arg Lys Ile Thr Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly 65 70 75 80		
Ser Ala Leu Leu Ala Ile Glu Phe Gly Leu Met Gly Pro Asn Tyr Ser 85 90 95		
Ile Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe His Ala Ala Ala 100 105 110		
Asn His Ile Arg Arg Gly Glu Ala Asp Leu Met Ile Ala Gly Gly Thr 115 120 125		
Glu Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg 130 135 140		
Ala Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp 145 150 155 160		
Asp Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu 165 170 175		
Val Met Glu Ser Leu Glu His Ala Met Arg Arg Gly Ala Pro Ile Ile 180 185 190		

Ala Glu Tyr Leu Gly Gly Ala Ile Asn Cys Asp Ala Tyr His Met Thr
195 200 205

Asp Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Ser
210 215 220

Leu Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala
225 230 235 240

His Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile
245 250 255

Lys Lys Val Phe Lys Asn Thr Lys Asp Ile Lys Ile Asn Ala Thr Lys
260 265 270

Ser Met Ile Gly His Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile
275 280 285

Ala Thr Ile Lys Gly Ile Asn Thr Gly Trp Leu His Pro Ser Ile Asn
290 295 300

Gln Phe Asn Pro Glu Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys
305 310 315 320

Lys Gln Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe
325 330 335

Gly Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
340 345 350

<210> 22
<211> 441
<212> PRT
<213> Cuphea hookeriana

<220>
<221> misc_feature
<222> (15)..(15)
<223> Xaa at position 15 is unknown.

<400> 22

Lys Leu Thr Leu Thr Lys Gly Asn Lys Ser Trp Ser Ser Thr Xaa Val
1 5 10 15

Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly Cys Arg Asn Ser Ala
20 25 30

Arg Ala Gly Met Gly Leu Val Ser Val Phe Gly Ser Asp Val Asp Ser
35 40 45

Tyr Tyr Glu Lys Leu Leu Ser Gly Glu Ser Gly Ile Ser Leu Ile Asp
50 55 60

Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Gly Gly Gln Ile Arg
65 70 75 80

Gly	Phe	Asn	Ala	Thr	Gly	Tyr	Ile	Asp	Gly	Lys	Asn	Asp	Arg	Arg	Leu	
				85					90					95		
Asp	Asp	Cys	Leu	Arg	Tyr	Cys	Ile	Val	Ala	Gly	Lys	Lys	Ala	Leu	Glu	
			100					105					110			
Asn	Ser	Asp	Leu	Gly	Gly	Glu	Ser	Leu	Ser	Lys	Ile	Asp	Lys	Glu	Arg	
		115					120					125				
Ala	Gly	Val	Leu	Val	Gly	Thr	Gly	Met	Gly	Gly	Leu	Thr	Val	Phe	Ser	
	130					135					140					
Asp	Gly	Val	Gln	Asn	Leu	Ile	Glu	Lys	Gly	His	Arg	Lys	Ile	Ser	Pro	
145					150					155					160	
Phe	Phe	Ile	Pro	Tyr	Ala	Ile	Thr	Asn	Met	Gly	Ser	Ala	Leu	Leu	Ala	
				165				170						175		
Ile	Asp	Leu	Gly	Leu	Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	
		180						185					190			
Ala	Thr	Ser	Asn	Tyr	Cys	Phe	Tyr	Ala	Ala	Ala	Asn	His	Ile	Arg	Arg	
		195					200					205				
Gly	Glu	Ala	Asp	Leu	Met	Ile	Ala	Gly	Gly	Thr	Glu	Ala	Ala	Ile	Ile	
	210					215					220					
Pro	Ile	Gly	Leu	Gly	Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	
225				230					235						240	
Asn	Asp	Asp	Pro	Gln	Thr	Ala	Ser	Arg	Pro	Trp	Asp	Lys	Asp	Arg	Asp	
				245					250					255		
Gly	Phe	Val	Met	Gly	Glu	Gly	Ala	Gly	Val	Leu	Val	Met	Glu	Ser	Leu	
			260					265					270			
Glu	His	Ala	Met	Lys	Arg	Gly	Ala	Pro	Ile	Ile	Ala	Glu	Tyr	Leu	Gly	
		275					280					285				
Gly	Ala	Val	Asn	Cys	Asp	Ala	Tyr	His	Met	Thr	Asp	Pro	Arg	Ala	Asp	
	290					295					300					
Gly	Leu	Gly	Val	Ser	Ser	Cys	Ile	Glu	Ser	Ser	Leu	Glu	Asp	Ala	Gly	
305					310					315					320	
Val	Ser	Pro	Glu	Glu	Val	Asn	Tyr	Ile	Asn	Ala	His	Ala	Thr	Ser	Thr	
				325					330					335		
Leu	Ala	Gly	Asp	Leu	Ala	Glu	Ile	Asn	Ala	Ile	Lys	Lys	Val	Phe	Lys	
			340					345					350			
Asn	Thr	Lys	Glu	Ile	Thr	Ile	Asn	Ala	Thr	Lys	Ser	Met	Ile	Gly	His	
		355					360					365				
Cys	Leu	Gly	Ala	Ser	Gly	Gly	Leu	Glu	Ala	Ile	Ala	Thr	Ile	Lys	Gly	
	370					375					380					

Ile Thr Thr Gly Trp Leu His Pro Ser Ile Asn Gln Phe Asn Pro Glu
 385 390 395 400

Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys Lys Gln Gln His Glu
 405 410 415

Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser
 420 425 430

Val Val Ala Phe Ser Ala Phe Lys Pro
 435 440

<210> 23
 <211> 430
 <212> PRT
 <213> Cuphea pullcherima

<400> 23

Arg Ala Ala Ser Pro Thr Val Ser Ala Pro Lys Arg Glu Thr Asp Pro
 1 5 10 15

Lys Lys Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Phe Gly
 20 25 30

Ser Asp Val Asp Ala Tyr Tyr Asp Lys Leu Leu Ser Gly Glu Ser Gly
 35 40 45

Ile Gly Pro Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe
 50 55 60

Gly Gly Gln Ile Arg Gly Phe Asn Ser Met Gly Tyr Ile Asp Gly Lys
 65 70 75 80

Asn Asp Arg Arg Leu Asp Asp Cys Leu Arg Tyr Cys Ile Val Ala Gly
 85 90 95

Lys Lys Ser Leu Glu Asp Ala Asp Leu Gly Ala Asp Arg Leu Ser Lys
 100 105 110

Ile Asp Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly
 115 120 125

Leu Thr Val Phe Ser Asp Gly Val Gln Ser Leu Ile Glu Lys Gly His
 130 135 140

Arg Lys Ile Thr Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly
 145 150 155 160

Ser Ala Leu Leu Ala Ile Glu Leu Gly Leu Met Gly Pro Asn Tyr Ser
 165 170 175

Ile Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe His Ala Ala Ala
 180 185 190

Asn His Ile Arg Arg Gly Glu Ala Asp Leu Met Ile Ala Gly Gly Thr

195	200	205
Glu Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg 210 215 220		
Ala Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp 225 230 235 240		
Asp Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu 245 250 255		
Val Leu Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile Ile 260 265 270		
Ala Glu Tyr Leu Gly Gly Ala Ile Asn Cys Asp Ala Tyr His Met Thr 275 280 285		
Asp Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Ser Ser 290 295 300		
Leu Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala 305 310 315 320		
His Ala Thr Ser Thr Leu Ala Gly Asp Leu Ala Glu Ile Asn Ala Ile 325 330 335		
Lys Lys Val Phe Lys Asn Thr Lys Asp Ile Lys Ile Asn Ala Thr Lys 340 345 350		
Ser Met Ile Gly His Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile 355 360 365		
Ala Thr Ile Lys Gly Ile Asn Thr Gly Trp Leu His Pro Ser Ile Asn 370 375 380		
Gln Phe Asn Pro Glu Pro Ser Val Glu Phe Asp Thr Val Ala Asn Lys 385 390 395 400		
Lys Gln Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe 405 410 415		
Gly Gly His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro 420 425 430		

<210> 24
 <211> 428
 <212> PRT
 <213> Cuphea pullcherima

<400> 24

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Arg Val Val Ile Thr Gly Met Gly Leu Val Ser Val Phe Gly Ser Asp 20 25 30

Val	Asp	Ala	Tyr	Tyr	Asp	Lys	Leu	Leu	Ser	Gly	Glu	Ser	Gly	Ile	Ser		
	35						40					45					
Leu	Ile	Asp	Arg	Phe	Asp	Ala	Ser	Lys	Phe	Pro	Thr	Arg	Phe	Ala	Gly		
	50					55					60						
Gln	Ile	Arg	Gly	Phe	Asn	Ala	Thr	Gly	Tyr	Ile	Asp	Gly	Lys	Asn	Asp		
	65				70				75					80			
Arg	Arg	Leu	Asp	Asp	Cys	Leu	Arg	Tyr	Cys	Ile	Val	Ala	Gly	Lys	Lys		
			85					90						95			
Ala	Leu	Glu	Asp	Ala	Asp	Leu	Ala	Gly	Gln	Ser	Leu	Ser	Lys	Ile	Asp		
		100						105					110				
Lys	Glu	Arg	Ala	Gly	Val	Leu	Val	Gly	Thr	Gly	Met	Gly	Gly	Leu	Thr		
	115					120						125					
Val	Phe	Ser	Asp	Gly	Val	Gln	Asn	Leu	Ile	Glu	Lys	Gly	His	Arg	Lys		
	130					135					140						
Ile	Ser	Pro	Phe	Phe	Ile	Pro	Tyr	Ala	Ile	Thr	Asn	Met	Gly	Ser	Ala		
	145				150					155					160		
Leu	Leu	Ala	Ile	Asp	Leu	Gly	Leu	Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser		
			165					170						175			
Thr	Ala	Cys	Ala	Thr	Ser	Asn	Tyr	Cys	Phe	Tyr	Ala	Ala	Ala	Asn	His		
		180						185					190				
Ile	Arg	Arg	Gly	Glu	Ala	Asp	Leu	Met	Ile	Ala	Gly	Gly	Thr	Glu	Ala		
	195						200					205					
Ala	Val	Ile	Pro	Ile	Gly	Leu	Gly	Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu		
	210					215					220						
Ser	Gln	Arg	Asn	Asp	Asp	Pro	Gln	Thr	Ala	Ser	Arg	Pro	Trp	Asp	Lys		
	225				230					235					240		
Asp	Arg	Asp	Gly	Phe	Val	Met	Gly	Glu	Gly	Ala	Gly	Val	Leu	Val	Met		
			245					250					255				
Glu	Ser	Leu	Glu	His	Ala	Met	Lys	Arg	Gly	Ala	Pro	Ile	Ile	Ala	Glu		
		260						265					270				
Tyr	Leu	Gly	Gly	Ala	Val	Asn	Cys	Asp	Ala	Tyr	His	Met	Thr	Asp	Pro		
	275					280						285					
Arg	Ala	Asp	Gly	Leu	Gly	Val	Ser	Ser	Cys	Ile	Glu	Ser	Ser	Leu	Glu		
	290					295					300						
Asp	Ala	Gly	Val	Ser	Pro	Glu	Glu	Val	Asn	Tyr	Ile	Asn	Ala	His	Ala		
	305				310					315					320		
Thr	Ser	Thr	Leu	Ala	Gly	Asp	Leu	Ala	Glu	Ile	Asn	Ala	Ile	Lys	Lys		
			325					330						335			

Val Phe Lys Asn Thr Lys Glu Ile Lys Ile Asn Ala Thr Lys Ser Met
 340 345 350

Ile Gly His Cys Leu Gly Ala Ser Gly Gly Leu Glu Ala Ile Ala Thr
 355 360 365

Ile Lys Gly Ile Thr Thr Gly Trp Leu His Pro Ser Ile Asn Gln Phe
 370 375 380

Asn Pro Glu Pro Ser Val Asp Phe Asn Thr Val Ala Asn Lys Lys Gln
 385 390 395 400

Gln His Glu Val Asn Val Ala Ile Ser Asn Ser Phe Gly Phe Gly Gly
 405 410 415

His Asn Ser Val Val Ala Phe Ser Ala Phe Lys Pro
 420 425

<210> 25
 <211> 427
 <212> PRT
 <213> Hordeum vulgare

<400> 25

Thr Ser Ala Ala Pro Gln Arg Glu Thr Asp Pro Arg Lys Arg Val Val
 1 5 10 15

Ile Thr Gly Met Gly Leu Ala Ser Val Phe Gly Ser Asp Val Asp Thr
 20 25 30

Phe Tyr Asp Arg Leu Leu Ala Gly Glu Ser Gly Val Gly Pro Ile Asp
 35 40 45

Arg Phe Asp Ala Ser Ser Phe Pro Thr Arg Phe Ala Gly Gln Ile Arg
 50 55 60

Gly Phe Ser Ser Glu Gly Tyr Ile Asp Gly Lys Asn Asp Arg Arg Leu
 65 70 75 80

Asp Asp Cys Ile Arg Tyr Cys Ile Leu Ser Gly Lys Lys Ala Leu Glu
 85 90 95

Ser Ala Gly Leu Gly Ala Gly Ser Asp Ala His Val Lys Leu Asp Val
 100 105 110

Gly Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu Ser Val
 115 120 125

Phe Ser Asp Gly Val Gln Asn Leu Ile Glu Lys Gly Tyr Arg Lys Ile
 130 135 140

Ser Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser Ala Leu
 145 150 155 160

Leu Ala Ile Asp Val Gly Phe Met Gly Pro Asn Tyr Ser Ile Ser Thr
 165 170 175

Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn His Ile
180 185 190

Arg Arg Gly Glu Ala Asp Ile Ile Val Ala Gly Gly Thr Glu Ala Ala
195 200 205

Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala Leu Ser
210 215 220

Gln Arg Asn Asp Asp Pro Ile Thr Ala Cys Arg Pro Trp Asp Lys Glu
225 230 235 240

Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val Met Glu
245 250 255

Ser Leu Glu His Ala Met Lys Arg Asp Ala Pro Ile Ile Ala Glu Tyr
260 265 270

Leu Gly Gly Ala Val Asn Cys Asp Ala Tyr His Met Thr Asp Pro Arg
275 280 285

Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Thr Met Ser Leu Arg Asp
290 295 300

Ala Gly Val Ala Pro Glu Glu Val Asn Tyr Ile Asn Ala His Ala Thr
305 310 315 320

Ser Thr Leu Ala Gly Asp Leu Ala Glu Val Arg Ala Ile Lys Gln Val
325 330 335

Phe Lys Asn Pro Ser Glu Ile Lys Ile Asn Ser Thr Lys Ser Met Ile
340 345 350

Gly His Cys Leu Gly Ala Ala Gly Gly Leu Glu Ala Ile Ala Thr Ile
355 360 365

Lys Ser Ile Thr Thr Gly Trp Val His Pro Thr Ile Asn Gln Phe Asn
370 375 380

Pro Glu Pro Glu Val Asp Phe Asp Thr Val Ala Asn Glu Lys Lys Gln
385 390 395 400

His Glu Val Asn Val Gly Ile Ser Asn Ser Phe Gly Phe Gly Gly His
405 410 415

Asn Ser Val Val Val Phe Ala Pro Phe Lys Pro
420 425

<210> 26
<211> 428
<212> PRT
<213> Ricinus communis

<400> 26

Asn Asn Asn Thr Thr Ile Ser Ala Pro Lys Arg Glu Lys Asp Pro Arg

1	5	10	15
Lys Arg Val Val Ile Thr Gly Thr Gly Leu Val Ser Val Phe Gly Asn	20	25	30
Asp Val Asp Thr Tyr Tyr Asp Lys Leu Leu Ala Gly Glu Ser Gly Ile	35	40	45
Gly Leu Ile Asp Arg Phe Asp Ala Ser Lys Phe Pro Thr Arg Phe Gly	50	55	60
Gly Gln Ile Arg Gly Phe Asn Ser Gln Gly Tyr Ile Asp Gly Lys Asn	65	70	75
Asp Arg Arg Leu Asp Asp Cys Leu Arg Tyr Cys Ile Val Ala Gly Lys	85	90	95
Lys Ala Leu Glu His Ala Asp Leu Gly Gly Asp Lys Leu Ser Lys Ile	100	105	110
Asp Lys Glu Arg Ala Gly Val Leu Val Gly Thr Gly Met Gly Gly Leu	115	120	125
Thr Val Phe Ser Asp Gly Val Gln Ala Leu Ile Glu Lys Gly His Arg	130	135	140
Lys Ile Thr Pro Phe Phe Ile Pro Tyr Ala Ile Thr Asn Met Gly Ser	145	150	155
Ala Leu Leu Ala Ile Glu Leu Gly Leu Met Gly Pro Asn Tyr Ser Ile	165	170	175
Ser Thr Ala Cys Ala Thr Ser Asn Tyr Cys Phe Tyr Ala Ala Ala Asn	180	185	190
His Ile Arg Arg Gly Glu Ala Glu Leu Met Ile Ala Gly Gly Thr Glu	195	200	205
Ala Ala Ile Ile Pro Ile Gly Leu Gly Gly Phe Val Ala Cys Arg Ala	210	215	220
Leu Ser Gln Arg Asn Asp Asp Pro Gln Thr Ala Ser Arg Pro Trp Asp	225	230	235
Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ala Gly Val Leu Val	245	250	255
Met Glu Ser Leu Glu His Ala Met Lys Arg Gly Ala Pro Ile Ile Ala	260	265	270
Glu Tyr Leu Gly Gly Ala Val Asn Cys Asp Ala Tyr His Met Thr Asp	275	280	285
Pro Arg Ala Asp Gly Leu Gly Val Ser Ser Cys Ile Glu Arg Ser Leu	290	295	300
Glu Asp Ala Gly Val Ser Pro Glu Glu Val Asn Tyr Ile Asn Ala His			

305		310		315		320
Ala Thr Ser Thr	Leu Ala Gly Asp	Leu Ala Glu Ile	Asn Ala Ile	Lys		
	325		330		335	
Lys Val Phe Lys	Asn Thr Ser Asp	Ile Lys Ile	Asn Ala Thr	Lys Ser		
	340		345		350	
Met Ile Gly His	Cys Leu Gly Ala	Ala Gly Gly Leu	Glu Ala Ile	Ala		
	355		360		365	
Cys Val Lys Ala	Ile Thr Thr Gly	Trp Leu His	Pro Thr Ile	Asn Gln		
	370		375		380	
Phe Asn Pro Glu	Pro Ser Val Glu	Phe Asp Thr	Val Ala Asn	Lys Lys		
	385		390		400	
Gln Gln His Glu	Val Asn Val Ala	Ile Ser Asn	Ser Phe Gly	Phe Gly		
	405		410		415	
Gly His Asn Ser	Val Val Ala Phe	Ser Ala Phe	Lys			
	420		425			
<210> 27						
<211> 420						
<212> PRT						
<213> Capsicum chinense						
<400> 27						
Lys Arg Glu Thr	Asp Pro Lys Lys	Arg Ile Val Ile	Thr Gly Met	Gly		
1	5	10	15			
Leu Val Ser Val	Phe Gly Ser Asp	Ile Asp Asn Phe	Tyr Asn Lys	Leu		
	20	25	30			
Leu Glu Gly Gln	Ser Gly Ile Ser	Leu Ile Asp Arg	Phe Asp Ala	Ser		
	35	40	45			
Ser Tyr Thr Val	Arg Phe Ala Gly	Gln Ile Arg Asp	Phe Ser Ser	Glu		
	50	55	60			
Gly Tyr Ile Asp	Gly Lys Asn Asp	Arg Arg Leu Asp	Asp Cys Trp	Arg		
65	70	75	80			
Tyr Cys Leu Val	Ala Gly Lys Arg	Ala Leu Glu Asp	Ala Asn Leu	Gly		
	85	90	95			
Gln Gln Val Leu	Asp Thr Met Asp	Lys Thr Arg Ile	Gly Val Leu	Val		
	100	105	110			
Gly Ser Ser Met	Gly Gly Ser Lys	Val Phe Ala Asp	Ala Val Glu	Ala		
	115	120	125			
Leu Val Gln Arg	Gly Tyr Lys Lys	Ile Asn Pro Phe	Phe Ile Pro	Tyr		
	130	135	140			

Ser Ile Thr Asn Met Gly Ser Ala Leu Leu Ala Ile Asp Thr Gly Leu
 145 150 155 160
 Met Gly Pro Thr Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ala Asn Tyr
 165 170 175
 Cys Phe Tyr Ala Ser Ala Asn His Ile Arg Arg Gly Glu Ala Asp Ile
 180 185 190
 Met Val Ala Gly Gly Thr Asp Ala Phe Ile Ser Ala Ile Gly Val Gly
 195 200 205
 Gly Leu Ile Ala Cys Arg Ala Leu Ser Gln Arg Asn Asp Glu Tyr Glu
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Arg Asn Arg Asp Gly Phe Val Ile Gly
 225 230 235 240
 Glu Gly Ser Gly Val Leu Val Met Glu Asn Leu Glu His Ala Leu Lys
 245 250 255
 Arg Gly Ala Pro Ile Ile Ala Glu Tyr Leu Gly Gly Ala Ile Thr Cys
 260 265 270
 Asp Ala His His Ile Thr Asp Pro Arg Ala Asp Gly Leu Gly Val Ser
 275 280 285
 Ser Cys Ile Val Met Ser Leu Val Asp Ala Gly Val Ser Pro Glu Glu
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Leu Ala Gly Asp Leu
 305 310 315 320
 Ala Glu Val Asn Ala Ile Lys Lys Val Phe Lys Asp Thr Ser Glu Ile
 325 330 335
 Lys Met Asn Gly Thr Lys Ser Met Ile Gly His Gly Leu Gly Ala Ser
 340 345 350
 Gly Gly Leu Glu Ala Ile Ala Thr Ile Lys Ala Ile Thr Thr Gly Trp
 355 360 365
 Leu His Pro Thr Ile Asn Gln Tyr Asp Leu Glu Pro Gln Val Thr Ile
 370 375 380
 Asp Thr Val Pro Asn Val Lys Lys Gln His Glu Val Asn Val Gly Ile
 385 390 395 400
 Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Val Val Val Phe Ala
 405 410 415
 Pro Tyr Lys Pro
 420

<210> 28
 <211> 420
 <212> PRT

<213> Cuphea hookeriana

<400> 28

Lys	Lys	Lys	Pro	Ser	Ile	Lys	Gln	Arg	Arg	Val	Val	Val	Thr	Gly	Met	
1				5					10					15		
Gly	Val	Val	Thr	Pro	Leu	Gly	His	Asp	Pro	Asp	Val	Phe	Tyr	Asn	Asn	
			20					25					30			
Leu	Leu	Asp	Gly	Thr	Ser	Gly	Ile	Ser	Glu	Ile	Glu	Thr	Phe	Asp	Cys	
		35					40					45				
Ala	Gln	Phe	Pro	Thr	Arg	Ile	Ala	Gly	Glu	Ile	Lys	Ser	Phe	Ser	Thr	
	50					55					60					
Asp	Gly	Trp	Val	Ala	Pro	Lys	Leu	Ser	Lys	Arg	Met	Asp	Lys	Phe	Met	
65					70					75					80	
Leu	Tyr	Met	Leu	Thr	Ala	Gly	Lys	Lys	Ala	Leu	Thr	Asn	Gly	Gly	Ile	
				85					90					95		
Thr	Glu	Asp	Val	Met	Lys	Glu	Leu	Asp	Lys	Arg	Lys	Cys	Gly	Val	Leu	
			100					105					110			
Ile	Gly	Ser	Ala	Met	Gly	Gly	Met	Lys	Val	Phe	Asn	Asp	Ala	Ile	Glu	
		115					120					125				
Ala	Leu	Arg	Ile	Ser	Tyr	Lys	Lys	Met	Asn	Pro	Phe	Cys	Val	Pro	Phe	
	130					135					140					
Ala	Thr	Thr	Asn	Met	Gly	Ser	Ala	Met	Leu	Ala	Met	Asp	Leu	Gly	Trp	
145					150				155						160	
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe	
				165					170					175		
Cys	Ile	Leu	Asn	Ala	Ala	Asn	His	Ile	Ile	Arg	Gly	Glu	Ala	Asp	Val	
			180					185					190			
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Val	Ile	Ile	Pro	Ile	Gly	Met	Gly	
		195					200					205				
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Ala	Asp	Pro	Thr	
	210					215					220					
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Ser	Asn	Arg	Asp	Gly	Phe	Val	Met	Gly	
225					230					235					240	
Glu	Gly	Ala	Gly	Val	Leu	Leu	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Lys	
				245					250					255		
Arg	Gly	Ala	Thr	Ile	Tyr	Ala	Glu	Phe	Leu	Gly	Gly	Ser	Phe	Thr	Cys	
			260					265					270			
Asp	Ala	Tyr	His	Met	Thr	Glu	Pro	His	Pro	Asp	Gly	Ala	Gly	Val	Ile	
		275					280					285				

Leu Cys Ile Glu Lys Ala Leu Ala Gln Ser Gly Val Ser Arg Glu Asp
 290 295 300

Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Ile
 305 310 315 320

Lys Glu Tyr Gln Ala Leu Ile His Cys Phe Gly Gln Asn Asn Glu Leu
 325 330 335

Lys Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350

Gly Gly Val Glu Ala Val Ser Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365

Ile His Pro Asn Ile Asn Leu Glu Asn Pro Asp Glu Gly Val Asp Thr
 370 375 380

Lys Leu Leu Val Gly Pro Lys Lys Glu Arg Leu Asn Ile Lys Val Gly
 385 390 395 400

Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Tyr Asn
 420

<210> 29
 <211> 420
 <212> PRT
 <213> Cuphea hookeriana

<400> 29

Asn Lys Lys Pro Ala Thr Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Tyr Tyr Asn Asn
 20 25 30

Leu Leu Asp Gly Ile Ser Gly Ile Ser Glu Ile Glu Asn Phe Asp Cys
 35 40 45

Ser Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Phe Ser Glu Arg Met Asp Lys Phe Met
 65 70 75 80

Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Gly Gly Ile
 85 90 95

Thr Glu Asp Ala Met Lys Glu Leu Asn Lys Arg Lys Cys Gly Val Leu
 100 105 110

Ile Gly Ser Gly Leu Gly Gly Met Lys Val Phe Ser Asp Ser Ile Glu

115					120					125					
Ala	Leu	Arg	Thr	Ser	Tyr	Lys	Lys	Ile	Ser	Pro	Phe	Cys	Val	Pro	Phe
130						135					140				
Ser	Thr	Thr	Asn	Met	Gly	Ser	Ala	Ile	Leu	Ala	Met	Asp	Leu	Gly	Trp
145					150					155					160
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe
				165					170					175	
Cys	Ile	Leu	Asn	Ala	Ala	Asn	His	Ile	Ile	Lys	Gly	Glu	Ala	Asp	Met
			180					185						190	
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Ala	Val	Leu	Pro	Val	Gly	Leu	Gly
	195						200					205			
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Asn	Asp	Pro	Thr
210						215					220				
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Ser	Asn	Arg	Asp	Gly	Phe	Val	Met	Gly
225					230					235					240
Glu	Gly	Ala	Gly	Val	Leu	Leu	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Lys
				245					250					255	
Arg	Gly	Ala	Thr	Ile	Tyr	Ala	Glu	Phe	Leu	Gly	Gly	Ser	Phe	Thr	Cys
			260					265						270	
Asp	Ala	Tyr	His	Met	Thr	Glu	Pro	His	Pro	Glu	Gly	Ala	Gly	Val	Ile
		275					280					285			
Leu	Cys	Ile	Glu	Lys	Ala	Leu	Ala	Gln	Ser	Gly	Val	Ser	Arg	Glu	Asp
	290					295					300				
Val	Asn	Tyr	Ile	Asn	Ala	His	Ala	Thr	Ser	Thr	Pro	Ala	Gly	Asp	Ile
305					310					315					320
Lys	Glu	Tyr	Gln	Ala	Leu	Ala	His	Cys	Phe	Gly	Gln	Asn	Ser	Glu	Leu
				325					330					335	
Arg	Val	Asn	Ser	Thr	Lys	Ser	Met	Ile	Gly	His	Leu	Leu	Gly	Gly	Ala
			340					345					350		
Gly	Gly	Val	Glu	Ala	Val	Ala	Val	Val	Gln	Ala	Ile	Arg	Thr	Gly	Trp
		355					360					365			
Ile	His	Pro	Asn	Ile	Asn	Leu	Glu	Asp	Pro	Asp	Glu	Gly	Val	Asp	Ala
	370					375					380				
Lys	Leu	Leu	Val	Gly	Pro	Lys	Lys	Glu	Lys	Leu	Lys	Val	Lys	Val	Gly
385					390					395					400
Leu	Ser	Asn	Ser	Phe	Gly	Phe	Gly	Gly	His	Asn	Ser	Ser	Ile	Leu	Phe
				405					410					415	
Ala	Pro	Cys	Asn												

420

<210> 30
 <211> 420
 <212> PRT
 <213> Cuphea pullcherima

<400> 30

Lys Lys Lys Pro Ser Ile Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Phe Tyr Asn Asn
 20 25 30

Leu Leu Asp Gly Thr Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45

Ala Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80

Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Thr Asp Gly Gly Ile
 85 90 95

Thr Glu Asp Val Met Lys Glu Leu Asp Lys Arg Lys Cys Gly Val Leu
 100 105 110

Ile Gly Ser Ala Met Gly Gly Met Lys Val Phe Asn Asp Ala Ile Glu
 115 120 125

Ala Leu Arg Ile Ser Tyr Lys Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140

Ala Thr Thr Asn Met Gly Ser Ala Met Leu Ala Met Asp Leu Gly Trp
 145 150 155 160

Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175

Cys Ile Met Asn Ala Ala Asn His Ile Ile Arg Gly Glu Ala Asp Val
 180 185 190

Met Leu Cys Gly Gly Ser Asp Ala Val Ile Ile Pro Ile Gly Met Gly
 195 200 205

Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Ser Asp Pro Thr
 210 215 220

Lys Ala Ser Arg Pro Trp Asp Ser Asn Arg Asp Gly Phe Val Met Gly
 225 230 235 240

Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Lys
 245 250 255

Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Asp Gly Ala Gly Val Ile
 275 280 285
 Leu Cys Ile Glu Lys Ala Leu Ala Gln Ser Gly Val Ser Arg Glu Asp
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Ile
 305 310 315 320
 Lys Glu Tyr Gln Ala Leu Ile His Cys Phe Gly Gln Asn Arg Glu Leu
 325 330 335
 Lys Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Val Glu Ala Val Ser Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Ile Asn Leu Glu Asn Pro Asp Glu Gly Val Asp Thr
 370 375 380
 Lys Leu Leu Val Gly Pro Lys Lys Glu Arg Leu Asn Val Lys Val Gly
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415
 Ala Pro Tyr Ile
 420

<210> 31
 <211> 421
 <212> PRT
 <213> Cuphea wrightii

<400> 31

Lys Lys Lys Pro Val Ile Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15
 Gly Val Val Thr Pro Leu Gly His Glu Pro Asp Val Phe Tyr Asn Asn
 20 25 30
 Leu Leu Asp Gly Val Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45
 Thr Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60
 Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80
 Leu Tyr Leu Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Gly Gly Ile
 85 90 95

Thr	Asp	Glu	Val	Met	Lys	Glu	Leu	Asp	Lys	Arg	Lys	Cys	Gly	Val	Leu	100	105	110
Ile	Gly	Ser	Gly	Met	Gly	Gly	Met	Lys	Val	Phe	Asn	Asp	Ala	Ile	Glu	115	120	125
Ala	Leu	Arg	Val	Ser	Tyr	Lys	Lys	Met	Asn	Pro	Phe	Cys	Val	Pro	Phe	130	135	140
Ala	Thr	Thr	Asn	Met	Gly	Ser	Ala	Met	Leu	Ala	Met	Asp	Leu	Gly	Trp	145	150	155
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe	165	170	175
Cys	Ile	Leu	Asn	Ala	Ala	Asn	His	Ile	Ile	Arg	Gly	Glu	Ala	Asp	Met	180	185	190
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Val	Ile	Ile	Pro	Ile	Gly	Leu	Gly	195	200	205
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Ser	Asp	Pro	Thr	210	215	220
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Ser	Asn	Arg	Asp	Gly	Phe	Val	Met	Gly	225	230	235
Glu	Gly	Ala	Gly	Val	Leu	Leu	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Lys	245	250	255
Arg	Gly	Ala	Thr	Ile	Tyr	Ala	Glu	Phe	Leu	Gly	Gly	Ser	Phe	Thr	Cys	260	265	270
Asp	Ala	Tyr	His	Met	Thr	Glu	Pro	His	Pro	Glu	Gly	Ala	Gly	Val	Ile	275	280	285
Leu	Cys	Ile	Glu	Lys	Ala	Leu	Ala	Gln	Ala	Gly	Val	Ser	Lys	Glu	Asp	290	295	300
Val	Asn	Tyr	Ile	Asn	Ala	His	Ala	Thr	Ser	Thr	Ser	Ala	Gly	Asp	Ile	305	310	315
Lys	Glu	Tyr	Gln	Ala	Leu	Ala	Arg	Cys	Phe	Gly	Gln	Asn	Ser	Glu	Leu	325	330	335
Arg	Val	Asn	Ser	Thr	Lys	Ser	Met	Ile	Gly	His	Leu	Leu	Gly	Ala	Ala	340	345	350
Gly	Gly	Val	Glu	Ala	Val	Thr	Val	Val	Gln	Ala	Ile	Arg	Thr	Gly	Trp	355	360	365
Ile	His	Pro	Asn	Leu	Asn	Leu	Glu	Asp	Pro	Asp	Lys	Ala	Val	Asp	Ala	370	375	380
Lys	Leu	Leu	Val	Gly	Pro	Lys	Lys	Glu	Arg	Leu	Asn	Val	Lys	Val	Gly	385	390	395
																		400

Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Cys Asn Val
 420

<210> 32
 <211> 420
 <212> PRT
 <213> Cuphea wrightii

<400> 32

Lys Lys Lys Pro Val Thr Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Phe Tyr Asn Asn
 20 25 30

Leu Leu Asp Gly Val Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45

Thr Gln Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Leu Ser Lys Arg Met Asp Lys Phe Met
 65 70 75 80

Leu Tyr Met Leu Thr Ala Gly Lys Lys Ala Leu Ala Asp Ala Gly Ile
 85 90 95

Thr Glu Asp Val Met Lys Glu Leu Asp Lys Arg Lys Cys Gly Val Leu
 100 105 110

Ile Gly Ser Gly Met Gly Gly Met Lys Leu Phe Asn Asp Ser Ile Glu
 115 120 125

Ala Leu Arg Ile Ser Tyr Lys Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140

Ala Thr Thr Asn Met Gly Ser Ala Met Leu Ala Met Asp Leu Gly Trp
 145 150 155 160

Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175

Cys Ile Leu Asn Ala Ala Asn His Ile Ile Arg Gly Glu Ala Asp Met
 180 185 190

Met Leu Cys Gly Gly Ser Asp Ala Ala Ile Ile Pro Ile Gly Leu Gly
 195 200 205

Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Asn Asp Pro Thr
 210 215 220

Lys Ala Ser Arg Pro Trp Asp Ser Asn Arg Asp Gly Phe Val Met Gly

225 230 235 240
 Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Lys
 245 250 255
 Arg Gly Ala Thr Ile Tyr Ala Glu Phe Leu Gly Gly Ser Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Glu Gly Ala Gly Val Ile
 275 280 285
 Leu Cys Ile Glu Arg Ala Leu Ala Gln Ser Gly Val Ser Lys Glu Asp
 290 295 300
 Val Asn Tyr Ile Asn Ala His Ala Thr Ser Thr Pro Ala Gly Asp Ile
 305 310 315 320
 Lys Glu Tyr Gln Ala Leu Ala Arg Ile Phe Ser Gln Asn Ser Glu Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Ile Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Val Glu Ala Val Thr Val Val Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Ile Asn Leu Glu Asn Pro Asp Asp Gly Val Asp Ala
 370 375 380
 Lys Leu Leu Val Gly Pro Lys Lys Glu Lys Leu Lys Val Lys Val Gly
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Cys Asn
 420

<210> 33
 <211> 420
 <212> PRT
 <213> Hordeum vulgare

<400> 33

Lys Lys Arg Pro Asp Val Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15
 Gly Val Val Thr Pro Leu Gly His Asp Pro Asp Val Phe Tyr Thr Asn
 20 25 30
 Leu Leu Asp Gly His Ser Gly Ile Ser Glu Ile Glu Thr Phe Asp Cys
 35 40 45
 Ser Lys Phe Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Glu	Gly	Trp	Val	Val	Pro	Lys	Leu	Ser	Lys	Arg	Met	Asp	Lys	Phe	Met	
65					70					75					80	
Leu	Tyr	Leu	Ile	Thr	Ala	Gly	Lys	Lys	Ala	Leu	Glu	Asn	Gly	Gly	Leu	
			85						90					95		
Thr	Glu	Glu	Val	Arg	Asn	Glu	Leu	Asp	Lys	Thr	Arg	Cys	Gly	Val	Leu	
			100					105					110			
Ile	Gly	Ser	Ala	Met	Gly	Gly	Met	Lys	Val	Phe	Asn	Asp	Ala	Ile	Glu	
		115					120					125				
Ala	Leu	Arg	Val	Ser	Tyr	Arg	Lys	Met	Asn	Pro	Phe	Cys	Val	Pro	Phe	
	130						135					140				
Ala	Thr	Thr	Asn	Met	Gly	Ser	Ala	Ile	Leu	Ala	Met	Asp	Leu	Gly	Trp	
145					150					155					160	
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe	
				165					170					175		
Cys	Ile	Leu	Asn	Ala	Ala	Asn	His	Ile	Arg	Arg	Gly	Glu	Ala	Asp	Val	
			180					185					190			
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Pro	Leu	Ile	Pro	Ile	Gly	Leu	Gly	
		195					200					205				
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Ser	Asp	Pro	Thr	
	210					215					220					
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Met	Asp	Arg	Asp	Gly	Phe	Val	Met	Gly	
225					230					235					240	
Glu	Gly	Ala	Gly	Val	Leu	Val	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Gln	
				245					250					255		
Arg	Gly	Ala	Thr	Ile	Tyr	Ala	Glu	Phe	Leu	Gly	Gly	Ser	Phe	Thr	Cys	
			260					265					270			
Asp	Ala	Tyr	His	Met	Thr	Glu	Pro	His	Pro	Glu	Gly	Thr	Gly	Ile	Thr	
		275					280					285				
Leu	Cys	Ile	Glu	Lys	Ala	Leu	Ala	Asp	Ser	Gly	Val	Ala	Arg	Glu	Glu	
	290					295					300					
Ile	Asn	Tyr	Val	Asn	Ala	His	Ala	Thr	Ser	Thr	Gln	Ser	Gly	Asp	Leu	
305					310					315					320	
Lys	Glu	Tyr	Glu	Ala	Ile	Val	Arg	Cys	Phe	Gly	Gln	Asn	Pro	Gln	Leu	
				325					330					335		
Arg	Val	Asn	Ser	Thr	Lys	Ser	Met	Thr	Gly	His	Leu	Ile	Gly	Ala	Ala	
				340				345					350			
Gly	Gly	Ile	Glu	Ala	Val	Ala	Cys	Val	Gln	Ala	Ile	Arg	Thr	Gly	Trp	
		355					360					365				

Val His Pro Asn Leu Asn Leu Glu Asn Pro Glu Lys Val Val Asp Val
 370 375 380

Gly Val Leu Val Gly Ser Glu Lys Glu Arg Cys Glu Val Lys Val Ala
 385 390 395 400

Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Phe Lys
 420

<210> 34

<211> 419

<212> PRT

<213> Hordeum vulgare

<400> 34

Asn Asn Lys Ser Glu Thr Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15

Gly Val Val Thr Pro Leu Gly His Glu Pro Asp Glu Phe Tyr Asn Asn
 20 25 30

Leu Leu Gln Gly Val Ser Gly Val Ser Glu Ile Glu Ala Phe Asp Cys
 35 40 45

Ser Ser Tyr Pro Thr Arg Ile Ala Gly Glu Ile Lys Ser Phe Ser Thr
 50 55 60

Asp Gly Trp Val Ala Pro Lys Leu Ala Lys Arg Met Asp Lys Phe Met
 65 70 75 80

Gln Tyr Leu Ile Val Ala Gly Lys Lys Ala Leu Asp Asn Gly Gly Val
 85 90 95

Thr Glu Asp Ile Met Asn Glu Leu Asp Lys Ser Arg Cys Gly Val Leu
 100 105 110

Ile Gly Ser Gly Met Gly Gly Met Lys Val Phe Ser Asp Ala Ile Glu
 115 120 125

Ala Leu Arg Val Ser Tyr Arg Lys Met Asn Pro Phe Cys Val Pro Phe
 130 135 140

Ala Thr Thr Asn Met Gly Ser Ala Val Leu Ala Met Asp Leu Gly Trp
 145 150 155 160

Met Gly Pro Asn Tyr Ser Ile Ser Thr Ala Cys Ala Thr Ser Asn Phe
 165 170 175

Cys Ile Leu Ser Ala Ala Asn His Ile Met Arg Gly Glu Thr Asp Leu
 180 185 190

Met Leu Cys Gly Gly Ser Asp Ala Pro Ile Ile Pro Ile Gly Leu Gly
 195 200 205

Gly Phe Val Ala Cys Arg Ala Leu Ser Gln Arg Asn Ser Asp Pro Thr
 210 215 220
 Lys Ala Ser Arg Pro Trp Asp Val Asp Arg Asp Gly Phe Val Met Gly
 225 230 235 240
 Glu Gly Ala Gly Val Leu Leu Leu Glu Glu Leu Glu His Ala Lys Gln
 245 250 255
 Arg Gly Ala Glu Ile Tyr Ala Glu Phe Leu Gly Gly Asn Phe Thr Cys
 260 265 270
 Asp Ala Tyr His Met Thr Glu Pro His Pro Glu Gly Lys Gly Val Ile
 275 280 285
 Leu Cys Val Glu Asn Ala Leu Ala Asp Ala Gly Val Thr Arg Gln Asp
 290 295 300
 Ile Asn Tyr Val Asn Ala His Ala Thr Ser Thr Gln Leu Gly Asp Leu
 305 310 315 320
 Lys Glu Phe Glu Ala Leu Arg Arg Cys Phe Gly Gln Asn Pro Gln Leu
 325 330 335
 Arg Val Asn Ser Thr Lys Ser Met Thr Gly His Leu Leu Gly Ala Ala
 340 345 350
 Gly Gly Ile Glu Ala Val Ala Ala Ile Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Ile His Pro Asn Ile Asn Leu Asn Asn Pro Glu Lys Asn Val Asp Val
 370 375 380
 Ser Leu Leu Val Gly Ser Gln Lys Glu Arg Cys Asp Val Lys Val Ala
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Leu Phe
 405 410 415

Ala Pro Phe

<210> 35
 <211> 420
 <212> PRT
 <213> Ricinus communis

<400> 35

Asn Lys Lys Pro Leu Met Lys Gln Arg Arg Val Val Val Thr Gly Met
 1 5 10 15
 Gly Val Val Ser Pro Leu Gly His Asp Ile Asp Val Tyr Tyr Asn Asn
 20 25 30
 Leu Leu Asp Gly Ser Ser Gly Ile Ser Gln Ile Asp Ser Phe Asp Cys

35					40					45					
Ala	Gln	Phe	Pro	Thr	Arg	Ile	Ala	Gly	Glu	Ile	Lys	Ser	Phe	Ser	Thr
50						55					60				
Asp	Gly	Trp	Val	Ala	Pro	Lys	Leu	Ser	Lys	Arg	Met	Asp	Lys	Phe	Met
65					70					75					80
Leu	Tyr	Met	Leu	Thr	Ala	Gly	Lys	Lys	Ala	Leu	Ala	Asp	Gly	Gly	Ile
				85					90					95	
Thr	Glu	Asp	Met	Met	Asp	Glu	Leu	Asp	Lys	Ala	Arg	Cys	Gly	Val	Leu
			100					105					110		
Ile	Gly	Ser	Ala	Met	Gly	Gly	Met	Lys	Val	Phe	Asn	Asp	Ala	Ile	Glu
		115					120					125			
Ala	Leu	Arg	Ile	Ser	Tyr	Arg	Lys	Met	Asn	Pro	Phe	Cys	Val	Pro	Phe
	130					135					140				
Ala	Thr	Thr	Asn	Met	Gly	Ser	Ala	Met	Leu	Ala	Met	Asp	Leu	Gly	Trp
145					150					155					160
Met	Gly	Pro	Asn	Tyr	Ser	Ile	Ser	Thr	Ala	Cys	Ala	Thr	Ser	Asn	Phe
				165					170					175	
Cys	Ile	Leu	Asn	Ala	Ala	Asn	His	Ile	Ile	Arg	Gly	Glu	Ala	Asp	Ile
			180					185					190		
Met	Leu	Cys	Gly	Gly	Ser	Asp	Ala	Ala	Ile	Ile	Pro	Ile	Gly	Leu	Gly
		195					200					205			
Gly	Phe	Val	Ala	Cys	Arg	Ala	Leu	Ser	Gln	Arg	Asn	Asp	Asp	Pro	Thr
	210					215					220				
Lys	Ala	Ser	Arg	Pro	Trp	Asp	Met	Asn	Arg	Asp	Gly	Phe	Val	Met	Gly
225					230					235					240
Glu	Gly	Ala	Gly	Val	Leu	Leu	Leu	Glu	Glu	Leu	Glu	His	Ala	Lys	Lys
				245					250					255	
Arg	Gly	Ala	Asn	Ile	Tyr	Ala	Glu	Phe	Leu	Gly	Gly	Ser	Phe	Thr	Cys
			260					265					270		
Asp	Ala	Tyr	His	Met	Thr	Glu	Pro	Arg	Pro	Asp	Gly	Val	Gly	Val	Ile
		275					280					285			
Leu	Cys	Ile	Glu	Lys	Ala	Leu	Ala	Arg	Ser	Gly	Val	Ser	Lys	Glu	Glu
	290					295					300				
Val	Asn	Tyr	Ile	Asn	Ala	His	Ala	Thr	Ser	Thr	Pro	Ala	Gly	Asp	Leu
305					310					315					320
Lys	Glu	Tyr	Glu	Ala	Leu	Met	Arg	Cys	Phe	Ser	Gln	Asn	Pro	Asp	Leu
				325					330					335	
Arg	Val	Asn	Ser	Thr	Lys	Ser	Met	Ile	Gly	His	Leu	Leu	Gly	Ala	Ala

340 345 350
 Gly Ala Val Glu Ala Ile Ala Thr Ile Gln Ala Ile Arg Thr Gly Trp
 355 360 365
 Val His Pro Asn Ile Asn Leu Glu Asn Pro Glu Glu Gly Val Asp Thr
 370 375 380
 Lys Val Leu Val Gly Pro Lys Lys Glu Arg Leu Asp Ile Lys Val Ala
 385 390 395 400
 Leu Ser Asn Ser Phe Gly Phe Gly Gly His Asn Ser Ser Ile Ile Phe
 405 410 415
 Ala Pro Tyr Lys
 420

 <210> 36
 <211> 413
 <212> PRT
 <213> Caenorhabditis elegans

 <220>
 <221> misc_feature
 <222> (53)..(53)
 <223> Xaa in position 53 in unknown.

 <400> 36

 Met Lys Leu Lys Ile Asn Lys Asn Phe Glu Met His Arg Val Val Ile
 1 5 10 15
 Thr Gly Met Gly Ala Ile Ser Pro Phe Gly Val Thr Val Asn Ala Leu
 20 25 30
 Arg Asn Gly Leu Asn Glu Gly Arg Ser Gly Leu Lys Tyr Asp Glu Ile
 35 40 45
 Leu Lys Phe Val Xaa Gly Ala Val Pro Gly Glu Arg Val Glu Asp Arg
 50 55 60
 Trp Ser Thr Gly Gln Gln Arg Glu Met Ser Lys Ala Ser Met Phe Val
 65 70 75 80
 Leu Ala Ala Ser Glu Glu Ala Leu Lys Gln Ala Lys Ala Glu Asp Val
 85 90 95
 Asp His Asn Glu Thr Leu Val Asn Ile Gly Thr Cys Met Ser Asp Leu
 100 105 110
 Glu His Ile Gly Glu Thr Ala Gln Lys Val Ser Glu Gly Gln Ser Arg
 115 120 125
 Arg Val Ser Pro Tyr Phe Val Pro Arg Ile Leu Asn Asn Leu Pro Ala
 130 135 140

Gly	Tyr	Val	Ala	Met	Lys	Tyr	Lys	Met	Arg	Gly	Gly	Val	Glu	Ser	Thr	145	150	155	160
Ser	Thr	Ala	Cys	Ala	Thr	Gly	Leu	His	Cys	Ile	Gly	Asn	Ser	Phe	Arg	165	170	175	
Ser	Ile	Arg	Tyr	Gly	Asp	Ser	Arg	Arg	Ala	Leu	Ala	Gly	Ala	Val	Glu	180	185	190	
Cys	Ala	Leu	Asn	Pro	Ile	Ala	Leu	Ala	Gly	Phe	Asp	Arg	Met	Arg	Ala	195	200	205	
Leu	Ala	Arg	Gly	Asp	Gln	Pro	Asn	Ile	Ser	Arg	Pro	Phe	Asp	Lys	Lys	210	215	220	
Arg	Ala	Gly	Phe	Val	Met	Ser	Glu	Gly	Val	Gly	Leu	Val	Phe	Met	Glu	225	230	235	240
Arg	Leu	Glu	Asp	Ala	Gln	Ala	Arg	Gly	Ala	Gln	Ile	Leu	Ala	Glu	Val	245	250	255	
Val	Gly	Tyr	Gly	Ile	Ser	Ser	Asp	Cys	Tyr	His	Ile	Ser	Thr	Pro	Asp	260	265	270	
Pro	Ser	Ala	Ile	Gly	Ala	Val	Leu	Ser	Met	Asn	Arg	Ala	Ile	Gly	Asn	275	280	285	
Ala	His	Leu	Glu	Pro	Lys	Asp	Ile	Gly	Tyr	Val	Asn	Ala	His	Ala	Thr	290	295	300	
Ser	Thr	Pro	Asn	Gly	Asp	Ser	Val	Glu	Ala	Glu	Ala	Val	Arg	Gln	Val	305	310	315	320
Phe	Pro	Glu	Gln	Asn	Ile	Ala	Val	Ser	Ser	Val	Lys	Gly	His	Ile	Gly	325	330	335	
His	Leu	Leu	Gly	Ala	Ala	Gly	Ser	Val	Glu	Ala	Ile	Ala	Thr	Ile	Phe	340	345	350	
Ala	Met	Asn	Asp	Asp	Val	Leu	Pro	Ala	Asn	Arg	Asn	Leu	Glu	Glu	Thr	355	360	365	
Asp	Glu	Gly	Asn	Gly	Leu	Asn	Leu	Leu	Arg	Glu	Asn	Gln	Lys	Trp	Ser	370	375	380	
Asp	Val	Ser	Gly	Asn	Lys	Ser	Arg	Ile	Ser	Ile	Cys	Asn	Ser	Phe	Gly	385	390	395	400
Phe	Gly	Ala	Thr	Asn	Ala	Ser	Leu	Ile	Leu	Lys	Gln	Phe	405	410					

<210> 37
 <211> 442
 <212> PRT
 <213> *Saccharomyces cerevisiae*
 <400> 37

Met	Ser	Arg	Arg	Val	Val	Ile	Thr	Gly	Leu	Gly	Cys	Val	Thr	Pro	Leu	
1				5					10					15		
Gly	Arg	Ser	Leu	Ser	Glu	Ser	Trp	Gly	Asn	Leu	Leu	Ser	Ser	Lys	Asn	
			20					25					30			
Gly	Leu	Thr	Pro	Ile	Thr	Ser	Leu	Pro	Asn	Tyr	Asn	Glu	Asp	Tyr	Lys	
		35					40					45				
Leu	Arg	Glu	Lys	Ser	Ile	Pro	Ser	Thr	Ile	Thr	Val	Gly	Lys	Ile	Pro	
	50					55					60					
Glu	Asn	Phe	Gln	Asn	Glu	Asn	Ser	Ala	Ile	Asn	Lys	Leu	Leu	Phe	Thr	
65					70					75					80	
Ser	Gln	Asp	Glu	Arg	Arg	Thr	Ser	Ser	Phe	Ile	Lys	Leu	Ala	Leu	Arg	
				85					90					95		
Thr	Thr	Tyr	Glu	Ala	Leu	His	Asn	Ala	Gly	Leu	Leu	Asn	Pro	Asn	Asp	
			100					105					110			
Ile	Thr	Ile	Asn	Thr	Ser	Leu	Cys	Asn	Leu	Asp	His	Phe	Gly	Cys	Leu	
		115					120					125				
Ile	Gly	Ser	Gly	Ile	Gly	Ser	Ile	Gln	Asp	Ile	Tyr	Gln	Thr	Ser	Leu	
	130					135					140					
Gln	Phe	His	Asn	Asp	Asn	Lys	Arg	Ile	Asn	Pro	Tyr	Phe	Val	Pro	Lys	
145					150					155					160	
Ile	Leu	Thr	Asn	Met	Ala	Ala	Gly	Asn	Val	Ser	Ile	Lys	Phe	Asn	Leu	
				165				170						175		
Arg	Gly	Leu	Ser	His	Ser	Val	Ser	Thr	Ala	Cys	Ala	Thr	Gly	Asn	Asn	
			180					185					190			
Ser	Ile	Gly	Asp	Ala	Phe	Asn	Phe	Ile	Arg	Leu	Gly	Met	Gln	Asp	Ile	
		195					200					205				
Cys	Val	Ala	Gly	Ala	Ser	Glu	Thr	Ser	Leu	His	Pro	Leu	Ser	Leu	Ala	
	210					215					220					
Gly	Phe	Ile	Arg	Ala	Lys	Ser	Ile	Thr	Thr	Asn	Gly	Ile	Ser	Arg	Pro	
225					230					235					240	
Phe	Asp	Thr	Gln	Arg	Ser	Gly	Phe	Val	Leu	Gly	Glu	Gly	Cys	Gly	Met	
				245					250					255		
Ile	Val	Met	Glu	Ser	Leu	Glu	His	Ala	Gln	Lys	Arg	Asn	Ala	Asn	Ile	
		260						265					270			
Ile	Ser	Glu	Leu	Val	Gly	Tyr	Gly	Leu	Ser	Ser	Asp	Ala	Cys	His	Ile	
		275					280					285				
Thr	Ser	Pro	Pro	Ala	Asp	Gly	Asn	Gly	Ala	Lys	Arg	Ala	Ile	Glu	Met	
		290				295					300					

Ala Leu Lys Met Ala Arg Leu Glu Pro Thr Asp Val Asp Tyr Val Asn
305 310 315 320

Ala His Ala Thr Ser Thr Leu Leu Gly Asp Lys Ala Glu Cys Leu Ala
325 330 335

Val Ala Ser Ala Leu Leu Pro Gly Arg Ser Lys Ser Lys Pro Leu Tyr
340 345 350

Ile Ser Ser Asn Lys Gly Ala Ile Gly His Leu Leu Gly Ala Ala Gly
355 360 365

Ala Val Glu Ser Ile Phe Thr Ile Cys Ser Leu Lys Asp Asp Lys Met
370 375 380

Pro His Thr Leu Asn Leu Asp Asn Val Leu Thr Leu Glu Asn Asn Glu
385 390 395 400

Ala Asp Lys Leu His Phe Ile Arg Asp Lys Pro Ile Val Gly Ala Asn
405 410 415

Pro Lys Tyr Ala Leu Cys Asn Ser Phe Gly Phe Gly Gly Val Asn Thr
420 425 430

Ser Leu Leu Phe Lys Lys Trp Glu Gly Ser
435 440

<210> 38

<211> 410

<212> PRT

<213> Escherichia coli

<400> 38

Met Ser Lys Arg Arg Val Val Val Thr Gly Leu Gly Met Leu Ser Pro
1 5 10 15

Val Gly Asn Thr Val Glu Ser Thr Trp Lys Ala Leu Leu Ala Gly Gln
20 25 30

Ser Gly Ile Ser Leu Ile Asp His Phe Asp Thr Ser Ala Tyr Ala Thr
35 40 45

Lys Phe Ala Gly Leu Val Lys Asp Phe Asn Cys Glu Asp Ile Ile Ser
50 55 60

Arg Lys Glu Gln Arg Lys Met Asp Ala Phe Ile Gln Tyr Gly Ile Val
65 70 75 80

Ala Gly Val Gln Ala Met Gln Asp Ser Gly Leu Glu Ile Thr Glu Glu
85 90 95

Asn Ala Thr Arg Ile Gly Ala Ala Ile Gly Ser Gly Ile Gly Gly Leu
100 105 110

Gly Leu Ile Glu Glu Asn His Thr Ser Leu Met Asn Gly Gly Pro Arg

115	120	125
Lys Ile Ser Pro Phe Phe Val Pro Ser Thr Ile Val Asn Met Val Ala 130 135 140		
Gly His Leu Thr Ile Met Tyr Gly Leu Arg Gly Pro Ser Ile Ser Ile 145 150 155 160		
Ala Thr Ala Cys Thr Ser Gly Val His Asn Ile Gly His Ala Ala Arg 165 170 175		
Ile Ile Ala Tyr Gly Asp Ala Asp Val Met Val Ala Gly Gly Ala Glu 180 185 190		
Lys Ala Ser Thr Pro Leu Gly Val Gly Gly Phe Gly Ala Ala Arg Ala 195 200 205		
Leu Ser Thr Arg Asn Asp Asn Pro Gln Ala Ala Ser Arg Pro Trp Asp 210 215 220		
Lys Glu Arg Asp Gly Phe Val Leu Gly Asp Gly Ala Gly Met Leu Val 225 230 235 240		
Leu Glu Glu Tyr Glu His Ala Lys Lys Arg Gly Ala Lys Ile Tyr Ala 245 250 255		
Glu Leu Val Gly Phe Gly Met Ser Ser Asp Ala Tyr His Met Thr Ser 260 265 270		
Pro Pro Glu Asn Gly Ala Gly Ala Ala Leu Ala Met Ala Asn Ala Leu 275 280 285		
Arg Asp Ala Gly Ile Glu Ala Ser Gln Ile Gly Tyr Val Asn Ala His 290 295 300		
Gly Thr Ser Thr Pro Ala Gly Asp Lys Ala Glu Ala Gln Ala Val Lys 305 310 315 320		
Thr Ile Phe Gly Glu Ala Ala Ser Arg Val Leu Val Ser Ser Thr Lys 325 330 335		
Ser Met Thr Gly His Leu Leu Gly Ala Ala Gly Ala Val Glu Ser Ile 340 345 350		
Tyr Ser Ile Leu Ala Leu Arg Asp Gln Ala Val Pro Pro Thr Ile Asn 355 360 365		
Leu Asp Asn Pro Asp Glu Gly Cys Asp Leu Asp Phe Val Pro His Glu 370 375 380		
Ala Arg Gln Val Ser Gly Met Glu Tyr Thr Leu Cys Asn Ser Phe Gly 385 390 395 400		
Phe Gly Gly Thr Asn Gly Ser Leu Ile Phe 405 410		

<210> 39

<211> 406
 <212> PRT
 <213> Escherichia coli

<400> 39

Met	Lys	Arg	Ala	Val	Ile	Thr	Gly	Leu	Gly	Ile	Val	Ser	Ser	Ile	Gly	1	5	10	15
Asn	Asn	Gln	Gln	Glu	Val	Leu	Ala	Ser	Leu	Arg	Glu	Gly	Arg	Ser	Gly	20	25	30	
Ile	Thr	Phe	Ser	Gln	Glu	Leu	Lys	Asp	Ser	Gly	Met	Arg	Ser	His	Val	35	40	45	
Trp	Gly	Asn	Val	Lys	Leu	Asp	Thr	Thr	Gly	Leu	Ile	Asp	Arg	Lys	Val	50	55	60	
Val	Arg	Phe	Met	Ser	Asp	Ala	Ser	Ile	Tyr	Ala	Phe	Leu	Ser	Met	Glu	65	70	75	80
Gln	Ala	Ile	Ala	Asp	Ala	Gly	Leu	Ser	Pro	Glu	Ala	Tyr	Gln	Asn	Asn	85	90	95	
Pro	Arg	Val	Gly	Leu	Ile	Ala	Gly	Ser	Gly	Gly	Gly	Ser	Pro	Arg	Phe	100	105	110	
Gln	Val	Phe	Gly	Ala	Asp	Ala	Met	Arg	Gly	Pro	Arg	Gly	Leu	Lys	Ala	115	120	125	
Val	Gly	Pro	Tyr	Val	Val	Thr	Lys	Ala	Met	Ala	Ser	Gly	Val	Ser	Ala	130	135	140	
Cys	Leu	Ala	Thr	Pro	Phe	Lys	Ile	His	Gly	Val	Asn	Tyr	Ser	Ile	Ser	145	150	155	160
Ser	Ala	Cys	Ala	Thr	Ser	Ala	His	Cys	Ile	Gly	Asn	Ala	Val	Glu	Gln	165	170	175	
Ile	Gln	Leu	Gly	Lys	Gln	Asp	Ile	Val	Phe	Ala	Gly	Gly	Gly	Glu	Glu	180	185	190	
Leu	Cys	Trp	Glu	Met	Ala	Cys	Glu	Phe	Asp	Ala	Met	Gly	Ala	Leu	Ser	195	200	205	
Thr	Lys	Tyr	Asn	Asp	Thr	Pro	Glu	Lys	Ala	Ser	Arg	Thr	Tyr	Asp	Ala	210	215	220	
His	Arg	Asp	Gly	Phe	Val	Ile	Ala	Gly	Gly	Gly	Gly	Met	Val	Val	Val	225	230	235	240
Glu	Glu	Leu	Glu	His	Ala	Leu	Ala	Arg	Gly	Ala	His	Ile	Tyr	Ala	Glu	245	250	255	
Ile	Val	Gly	Tyr	Gly	Ala	Thr	Ser	Asp	Gly	Ala	Asp	Met	Val	Ala	Pro	260	265	270	

Ser Gly Glu Gly Ala Val Arg Cys Met Lys Met Ala Met His Gly Val
275 280 285

Asp Thr Pro Ile Asp Tyr Leu Asn Ser His Gly Thr Ser Thr Pro Val
290 295 300

Gly Asp Val Lys Glu Leu Ala Ala Ile Arg Glu Val Phe Gly Asp Lys
305 310 315 320

Ser Pro Ala Ile Ser Ala Thr Lys Ala Met Thr Gly His Ser Leu Gly
325 330 335

Ala Ala Gly Val Gln Glu Ala Ile Tyr Ser Leu Leu Met Leu Glu His
340 345 350

Gly Phe Ile Ala Pro Ser Ile Asn Ile Glu Glu Leu Asp Glu Gln Ala
355 360 365

Ala Gly Leu Asn Ile Val Thr Glu Thr Thr Asp Arg Glu Leu Thr Thr
370 375 380

Val Met Ser Asn Ser Phe Gly Phe Gly Gly Thr Asn Ala Thr Leu Val
385 390 395 400

Met Arg Lys Leu Lys Asp
405

<210> 40

<211> 416

<212> PRT

<213> Mycobacterium tuberculosis

<400> 40

Met Ser Gln Pro Ser Thr Ala Asn Gly Gly Phe Pro Ser Val Val Val
1 5 10 15

Thr Ala Val Thr Ala Thr Thr Ser Ile Ser Pro Asp Ile Glu Ser Thr
20 25 30

Trp Lys Gly Leu Leu Ala Gly Glu Ser Gly Ile His Ala Leu Glu Asp
35 40 45

Glu Phe Val Thr Lys Trp Asp Leu Ala Val Lys Ile Gly Gly His Leu
50 55 60

Lys Asp Pro Val Asp Ser His Met Gly Arg Leu Asp Met Arg Arg Met
65 70 75 80

Ser Tyr Val Gln Arg Met Gly Lys Leu Leu Gly Gly Gln Leu Trp Glu
85 90 95

Ser Ala Gly Ser Pro Glu Val Asp Pro Asp Arg Phe Ala Val Val Val
100 105 110

Gly Thr Gly Leu Gly Gly Ala Glu Arg Ile Val Glu Ser Tyr Asp Leu
115 120 125

Met Asn Ala Gly Gly Pro Arg Lys Val Ser Pro Leu Ala Val Gln Met
 130 135 140
 Ile Met Pro Asn Gly Ala Ala Ala Val Ile Gly Leu Gln Leu Gly Ala
 145 150 155 160
 Arg Ala Gly Val Met Thr Pro Val Ser Ala Cys Ser Ser Gly Ser Glu
 165 170 175
 Ala Ile Ala His Ala Trp Arg Gln Ile Val Met Gly Asp Ala Asp Val
 180 185 190
 Ala Val Cys Gly Gly Val Glu Gly Pro Ile Glu Ala Leu Pro Ile Ala
 195 200 205
 Ala Phe Ser Met Met Arg Ala Met Ser Thr Arg Asn Asp Glu Pro Glu
 210 215 220
 Arg Ala Ser Arg Pro Phe Asp Lys Asp Arg Asp Gly Phe Val Phe Gly
 225 230 235 240
 Glu Ala Gly Ala Leu Met Leu Ile Glu Thr Glu Glu His Ala Lys Ala
 245 250 255
 Arg Gly Ala Lys Pro Leu Ala Arg Leu Leu Gly Ala Gly Ile Thr Ser
 260 265 270
 Asp Ala Phe His Met Val Ala Pro Ala Ala Asp Gly Val Arg Ala Gly
 275 280 285
 Arg Ala Met Thr Arg Ser Leu Glu Leu Ala Gly Leu Ser Pro Ala Asp
 290 295 300
 Ile Asp His Val Asn Ala His Gly Thr Ala Thr Pro Ile Gly Asp Ala
 305 310 315 320
 Ala Glu Ala Asn Ala Ile Arg Val Ala Gly Cys Asp Gln Ala Ala Val
 325 330 335
 Tyr Ala Pro Lys Ser Ala Leu Gly His Ser Ile Gly Ala Val Gly Ala
 340 345 350
 Leu Glu Ser Val Leu Thr Val Leu Thr Leu Arg Asp Gly Val Ile Pro
 355 360 365
 Pro Thr Leu Asn Tyr Glu Thr Pro Asp Pro Glu Ile Asp Leu Asp Val
 370 375 380
 Val Ala Gly Glu Pro Arg Tyr Gly Asp Tyr Arg Tyr Ala Val Asn Asn
 385 390 395 400
 Ser Phe Gly Phe Gly Gly His Asn Val Ala Leu Ala Phe Gly Arg Tyr
 405 410 415

<210> 41
 <211> 438

<212> PRT

<213> Mycobacterium tuberculosis

<400> 41

Met	Gly	Val	Pro	Pro	Leu	Ala	Gly	Ala	Ser	Arg	Thr	Asp	Met	Glu	Gly	
1				5					10					15		
Thr	Phe	Ala	Arg	Pro	Met	Thr	Glu	Leu	Val	Thr	Gly	Lys	Ala	Phe	Pro	
			20					25					30			
Tyr	Val	Val	Val	Thr	Gly	Ile	Ala	Met	Thr	Thr	Ala	Leu	Ala	Thr	Asp	
			35				40					45				
Ala	Glu	Thr	Thr	Trp	Lys	Leu	Leu	Leu	Asp	Arg	Gln	Ser	Gly	Ile	Arg	
	50					55					60					
Thr	Leu	Asp	Asp	Pro	Phe	Val	Glu	Glu	Phe	Asp	Leu	Pro	Val	Arg	Ile	
65					70					75					80	
Gly	Gly	His	Leu	Leu	Glu	Glu	Phe	Asp	His	Gln	Leu	Thr	Arg	Ile	Glu	
			85						90					95		
Leu	Arg	Arg	Met	Gly	Tyr	Leu	Gln	Arg	Met	Ser	Thr	Val	Leu	Ser	Arg	
			100					105					110			
Arg	Leu	Trp	Glu	Asn	Ala	Gly	Ser	Pro	Glu	Val	Asp	Thr	Asn	Arg	Leu	
		115					120					125				
Met	Val	Ser	Ile	Gly	Thr	Gly	Leu	Gly	Ser	Ala	Glu	Glu	Leu	Val	Phe	
	130					135					140					
Ser	Tyr	Asp	Asp	Met	Arg	Ala	Arg	Gly	Met	Lys	Ala	Val	Ser	Pro	Leu	
145					150					155					160	
Thr	Val	Gln	Lys	Tyr	Met	Pro	Asn	Gly	Ala	Ala	Ala	Ala	Val	Gly	Leu	
			165					170						175		
Glu	Arg	His	Ala	Lys	Ala	Gly	Val	Met	Thr	Pro	Val	Ser	Ala	Cys	Ala	
			180					185					190			
Ser	Gly	Ala	Glu	Ala	Ile	Ala	Arg	Ala	Trp	Gln	Gln	Ile	Val	Leu	Gly	
	195						200					205				
Glu	Ala	Asp	Ala	Ala	Ile	Cys	Gly	Gly	Val	Glu	Thr	Arg	Ile	Glu	Ala	
	210					215				220						
Val	Pro	Ile	Ala	Gly	Phe	Ala	Gln	Met	Arg	Ile	Val	Met	Ser	Thr	Asn	
225					230					235					240	
Asn	Asp	Asp	Pro	Ala	Gly	Ala	Cys	Arg	Pro	Phe	Asp	Arg	Asp	Arg	Asp	
			245						250					255		
Gly	Phe	Val	Phe	Gly	Glu	Gly	Gly	Ala	Leu	Leu	Leu	Ile	Glu	Thr	Glu	
		260						265					270			
Glu	His	Ala	Lys	Ala	Arg	Gly	Ala	Asn	Ile	Leu	Ala	Arg	Ile	Met	Gly	

275					280					285														
Ala	Ser	Ile	Thr	Ser	Asp	Gly	Phe	His	Met	Val	Ala	Pro	Asp	Pro	Asn									
290					295					300														
Gly	Glu	Arg	Ala	Gly	His	Ala	Ile	Thr	Arg	Ala	Ile	Gln	Leu	Ala	Gly									
305					310					315					320									
Leu	Ala	Pro	Gly	Asp	Ile	Asp	His	Val	Asn	Ala	His	Ala	Thr	Gly	Thr									
					325					330					335									
Gln	Val	Gly	Asp	Leu	Ala	Glu	Gly	Arg	Ala	Ile	Asn	Asn	Ala	Leu	Gly									
					340					345					350									
Gly	Asn	Arg	Pro	Ala	Val	Tyr	Ala	Pro	Lys	Ser	Ala	Leu	Gly	His	Ser									
					355					360					365									
Val	Gly	Ala	Val	Gly	Ala	Val	Glu	Ser	Ile	Leu	Thr	Val	Leu	Ala	Leu									
					370					375					380									
Arg	Asp	Gln	Val	Ile	Pro	Pro	Thr	Leu	Asn	Leu	Val	Asn	Leu	Asp	Pro									
					385					390					395					400				
Glu	Ile	Asp	Leu	Asp	Val	Val	Ala	Gly	Glu	Pro	Arg	Pro	Gly	Asn	Tyr									
					405					410					415									
Arg	Tyr	Ala	Ile	Asn	Asn	Ser	Phe	Gly	Phe	Gly	Gly	His	Asn	Val	Ala									
					420					425					430									
Ile	Ala	Phe	Gly	Arg	Tyr																			
					435																			

<210> 42
 <211> 418
 <212> PRT
 <213> Rattus norvegicus

<400> 42

Ser	Arg	Ala	Ser	Arg	Gln	Arg	Arg	Ala	Met	Glu	Glu	Val	Val	Ile	Ala	
1	5			10						15						
Gly	Met	Ser	Gly	Lys	Leu	Pro	Glu	Ser	Glu	Asn	Leu	Gln	Glu	Phe	Trp	
			20			25			30							
Ala	Asn	Leu	Ile	Gly	Gly	Val	Asp	Met	Val	Thr	Asp	Asp	Asp	Arg	Arg	
			35			40			45							
Trp	Lys	Ala	Gly	Leu	Tyr	Gly	Leu	Pro	Lys	Arg	Ser	Gly	Lys	Leu	Lys	
			50			55			60							
Asp	Leu	Ser	Lys	Phe	Asp	Ala	Ser	Phe	Phe	Gly	Val	His	Pro	Lys	Gln	
			65			70			75						80	
Ala	His	Thr	Met	Asp	Pro	Gln	Leu	Arg	Leu	Leu	Leu	Glu	Val	Ser	Tyr	
			85			90			95							

Glu	Ala	Ile	Val	Asp	Gly	Gly	Ile	Asn	Pro	Ala	Ser	Leu	Arg	Gly	Thr	100	105	110
Asn	Thr	Gly	Val	Trp	Val	Gly	Val	Ser	Gly	Ser	Glu	Ala	Ser	Glu	Ala	115	120	125
Leu	Ser	Arg	Asp	Pro	Glu	Thr	Leu	Leu	Gly	Tyr	Ser	Met	Val	Gly	Cys	130	135	140
Gln	Arg	Ala	Met	Met	Ala	Asn	Arg	Leu	Ser	Phe	Phe	Phe	Asp	Phe	Lys	145	150	155
Gly	Pro	Ser	Ile	Ala	Leu	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Leu	Ala	165	170	175
Leu	Gln	Asn	Ala	Tyr	Gln	Ala	Ile	Arg	Ser	Gly	Glu	Cys	Pro	Ala	Ala	180	185	190
Ile	Val	Gly	Gly	Ile	Asn	Leu	Leu	Leu	Lys	Pro	Asn	Thr	Ser	Val	Gln	195	200	205
Phe	Met	Lys	Leu	Gly	Met	Leu	Ser	Pro	Asp	Gly	Thr	Cys	Arg	Ser	Phe	210	215	220
Asp	Asp	Ser	Gly	Asn	Gly	Tyr	Cys	Arg	Ala	Glu	Ala	Val	Val	Ala	Val	225	230	235
Leu	Leu	Thr	Lys	Lys	Ser	Leu	Ala	Arg	Arg	Val	Tyr	Ala	Thr	Ile	Leu	245	250	255
Asn	Ala	Gly	Thr	Asn	Thr	Asp	Gly	Cys	Lys	Glu	Gln	Gly	Val	Thr	Phe	260	265	270
Pro	Ser	Gly	Glu	Ala	Gln	Glu	Gln	Leu	Ile	Arg	Ser	Leu	Tyr	Gln	Pro	275	280	285
Gly	Gly	Val	Ala	Pro	Glu	Ser	Leu	Glu	Tyr	Ile	Glu	Ala	His	Gly	Thr	290	295	300
Gly	Thr	Lys	Val	Gly	Asp	Pro	Gln	Glu	Leu	Asn	Gly	Ile	Thr	Arg	Ser	305	310	315
Leu	Cys	Ala	Phe	Arg	Gln	Ser	Pro	Leu	Leu	Ile	Gly	Ser	Thr	Lys	Ser	325	330	335
Asn	Met	Gly	His	Pro	Glu	Pro	Ala	Ser	Gly	Leu	Ala	Ala	Leu	Thr	Lys	340	345	350
Val	Leu	Leu	Ser	Leu	Glu	Asn	Gly	Val	Trp	Ala	Pro	Asn	Leu	His	Phe	355	360	365
His	Asn	Pro	Asn	Pro	Glu	Ile	Pro	Ala	Leu	Leu	Asp	Gly	Arg	Leu	Gln	370	375	380
Val	Val	Asp	Arg	Pro	Leu	Pro	Val	Arg	Gly	Gly	Ile	Val	Gly	Ile	Asn	385	390	395

Ser Phe Gly Phe Gly Gly Ala Asn Val His Val Ile Leu Gln Pro Asn
405 410 415

Ala Ser

<210> 43
<211> 401
<212> PRT
<213> Rhizobium sp. Nodulation Protein E

<400> 43

Met Asp Arg Arg Val Val Ile Thr Gly Ile Gly Gly Leu Cys Gly Leu
1 5 10 15

Gly Thr Asn Ala Ala Ser Ile Trp Lys Glu Met Arg Glu Gly Pro Ser
20 25 30

Ala Ile Ser Pro Ile Ile Thr Thr Asp Leu Tyr Asp Leu Glu Gly Thr
35 40 45

Val Gly Leu Glu Ile Lys Ala Ile Pro Glu His Asp Ile Pro Arg Lys
50 55 60

Gln Leu Val Ser Met Asp Arg Phe Ser Leu Leu Ala Val Ile Ala Ala
65 70 75 80

Thr Glu Ala Met Lys Gln Ala Gly Leu Ser Cys Asp Glu Gln Asn Ala
85 90 95

His Arg Phe Gly Ala Ala Met Gly Leu Gly Gly Pro Gly Trp Asp Thr
100 105 110

Ile Glu Glu Thr Tyr Arg Ser Ile Leu Leu Asp Gly Val Thr Arg Ala
115 120 125

Arg Ile Phe Thr Ala Pro Lys Gly Met Pro Ser Ala Ala Ala Gly His
130 135 140

Val Ser Ile Phe Leu Gly Leu Arg Gly Pro Val Phe Gly Val Thr Ser
145 150 155 160

Ala Cys Ala Ala Gly Asn His Ala Ile Ala Ser Ala Val Asp Gln Ile
165 170 175

Arg Leu Gly Arg Ala Asp Val Met Leu Ala Gly Gly Ser Asp Ala Pro
180 185 190

Leu Thr Trp Gly Val Leu Lys Ser Trp Glu Ala Leu Arg Val Leu Ala
195 200 205

Pro Asp Thr Cys Arg Pro Phe Ser Ala Asp Arg Lys Gly Val Val Leu
210 215 220

Gly Glu Gly Ala Gly Met Ala Val Leu Glu Ser Tyr Glu His Ala Ala
225 230 235 240

85					90					95						
Ala	His	Arg	Val	Gly	Val	Cys	Val	Gly	Thr	Ala	Val	Gly	Cys	Thr	Gln	
100					105					110						
Lys	Leu	Glu	Ser	Glu	Tyr	Val	Ala	Leu	Ser	Ala	Gly	Gly	Ala	His	Trp	
115					120					125						
Val	Val	Asp	Pro	Gly	Arg	Gly	Ser	Pro	Glu	Leu	Tyr	Asp	Tyr	Phe	Val	
130					135					140						
Pro	Ser	Ser	Leu	Ala	Ala	Glu	Val	Ala	Trp	Leu	Ala	Gly	Ala	Glu	Gly	
145					150					155					160	
Pro	Val	Asn	Ile	Val	Ser	Ala	Gly	Cys	Thr	Ser	Gly	Ile	Asp	Ser	Ile	
165					170					175						
Gly	Tyr	Ala	Cys	Glu	Leu	Ile	Arg	Glu	Gly	Thr	Val	Asp	Ala	Met	Val	
180					185					190						
Ala	Gly	Gly	Val	Asp	Ala	Pro	Ile	Ala	Pro	Ile	Thr	Val	Ala	Cys	Phe	
195					200					205						
Asp	Ala	Ile	Arg	Ala	Thr	Ser	Asp	His	Asn	Asp	Thr	Pro	Glu	Thr	Ala	
210					215					220						
Ser	Arg	Pro	Phe	Ser	Arg	Ser	Arg	Asn	Gly	Phe	Val	Leu	Gly	Glu	Gly	
225					230					235					240	
Gly	Ala	Ile	Val	Val	Leu	Glu	Glu	Ala	Glu	Ala	Ala	Val	Arg	Arg	Gly	
245					250					255						
Ala	Arg	Ile	Tyr	Ala	Glu	Ile	Gly	Gly	Tyr	Ala	Ser	Arg	Gly	Asn	Ala	
260					265					270						
Tyr	His	Met	Thr	Gly	Leu	Arg	Ala	Asp	Gly	Ala	Glu	Met	Ala	Ala	Ala	
275					280					285						
Ile	Thr	Ala	Ala	Leu	Asp	Glu	Ala	Arg	Arg	Asp	Pro	Ser	Asp	Val	Asp	
290					295					300						
Tyr	Val	Asn	Ala	His	Gly	Thr	Ala	Thr	Lys	Gln	Asn	Asp	Arg	His	Glu	
305					310					315					320	
Thr	Ser	Ala	Phe	Lys	Arg	Ser	Leu	Gly	Glu	His	Ala	Tyr	Arg	Val	Pro	
325					330					335						
Ile	Ser	Ser	Ile	Lys	Ser	Met	Ile	Gly	His	Ser	Leu	Gly	Ala	Val	Gly	
340					345					350						
Ser	Leu	Glu	Val	Ala	Ala	Thr	Ala	Leu	Ala	Val	Glu	Tyr	Gly	Val	Ile	
355					360					365						
Pro	Pro	Thr	Ala	Asn	Leu	His	Asp	Pro	Asp	Pro	Glu	Leu	Asp	Leu	Asp	
370					375					380						
Tyr	Val	Pro	Leu	Thr	Ala	Arg	Glu	Lys	Arg	Val	Arg	His	Ala	Leu	Thr	

385 390 395 400
 Val Gly Ser Gly Phe Gly Gly Phe Gln Ser Ala Met Leu Leu Ser Arg
 405 410 415

 Leu Glu Arg

 <210> 45
 <211> 416
 <212> PRT
 <213> Synechocystis sp.

 <400> 45

 Met Ala Asn Leu Glu Lys Lys Arg Val Val Val Thr Gly Leu Gly Ala
 1 5 10 15

 Ile Thr Pro Ile Gly Asn Thr Leu Gln Asp Tyr Trp Gln Gly Leu Met
 20 25 30

 Glu Gly Arg Asn Gly Ile Gly Pro Ile Thr Arg Phe Asp Ala Ser Asp
 35 40 45

 Gln Ala Cys Arg Phe Gly Gly Glu Val Lys Asp Phe Asp Ala Thr Gln
 50 55 60

 Phe Leu Asp Arg Lys Glu Ala Lys Arg Met Asp Arg Phe Cys His Phe
 65 70 75 80

 Ala Val Cys Ala Ser Gln Gln Ala Ile Asn Asp Ala Lys Leu Val Ile
 85 90 95

 Asn Glu Leu Asn Ala Asp Glu Ile Gly Val Leu Ile Gly Thr Gly Ile
 100 105 110

 Gly Gly Leu Lys Val Leu Glu Asp Gln Gln Thr Ile Leu Leu Asp Lys
 115 120 125

 Gly Pro Ser Arg Cys Ser Pro Phe Met Ile Pro Met Met Ile Ala Asn
 130 135 140

 Met Ala Ser Gly Leu Thr Ala Ile Asn Leu Gly Ala Lys Gly Pro Asn
 145 150 155 160

 Asn Cys Thr Val Thr Ala Cys Ala Ala Gly Ser Asn Ala Ile Gly Asp
 165 170 175

 Ala Phe Arg Leu Val Gln Asn Gly Tyr Ala Lys Ala Met Ile Cys Gly
 180 185 190

 Gly Thr Glu Ala Ala Ile Thr Pro Leu Ser Tyr Ala Gly Phe Ala Ser
 195 200 205

 Ala Arg Ala Leu Ser Phe Arg Asn Asp Asp Pro Leu His Ala Ser Arg
 210 215 220

Pro Phe Asp Lys Asp Arg Asp Gly Phe Val Met Gly Glu Gly Ser Gly
 225 230 235 240
 Ile Leu Ile Leu Glu Glu Leu Glu Ser Ala Leu Ala Arg Gly Ala Lys
 245 250 255
 Ile Tyr Gly Glu Met Val Gly Tyr Ala Met Thr Cys Asp Ala Tyr His
 260 265 270
 Ile Thr Ala Pro Val Pro Asp Gly Arg Gly Ala Thr Arg Ala Ile Ala
 275 280 285
 Trp Ala Leu Lys Asp Ser Gly Leu Lys Pro Glu Met Val Ser Tyr Ile
 290 295 300
 Asn Ala His Gly Thr Ser Thr Pro Ala Asn Asp Val Thr Glu Thr Arg
 305 310 315 320
 Ala Ile Lys Gln Ala Leu Gly Asn His Ala Tyr Asn Ile Ala Val Ser
 325 330 335
 Ser Thr Lys Ser Met Thr Gly His Leu Leu Gly Gly Ser Gly Gly Ile
 340 345 350
 Glu Ala Val Ala Thr Val Met Ala Ile Ala Glu Asp Lys Val Pro Pro
 355 360 365
 Thr Ile Asn Leu Glu Asn Pro Asp Pro Glu Cys Asp Leu Asp Tyr Val
 370 375 380
 Pro Gly Gln Ser Arg Ala Leu Ile Val Asp Val Ala Leu Ser Asn Ser
 385 390 395 400
 Phe Gly Phe Gly Gly His Asn Val Thr Leu Ala Phe Lys Lys Tyr Gln
 405 410 415

<210> 46
 <211> 441
 <212> PRT
 <213> *Vibrio harveyi*

<400> 46

Ser Asp Tyr His Asn His Phe Ile Asn Val Lys Ala Val Ala Arg Pro
 1 5 10 15
 Leu Phe Phe Cys Leu Phe Trp Arg Thr Ser Val Ala Asn Asn Arg Arg
 20 25 30
 Val Val Ile Thr Gly Leu Gly Ile Val Ser Pro Val Gly Asn Thr Val
 35 40 45
 Ala Thr Ala Trp Glu Ala Ile Lys Ser Gly Ile Ser Gly Ile Glu Asn
 50 55 60
 Ile Glu His Phe Asp Thr Thr Asn Phe Ser Thr Lys Phe Ala Gly Leu
 65 70 75 80

Val	Asn	Asp	Phe	Asp	Ala	Glu	Ser	Val	Gly	Ile	Asn	Arg	Lys	Asp	Cys	85	90	95
Arg	Lys	Met	Asp	Leu	Phe	Ile	Gln	Tyr	Gly	Ile	Ala	Ala	Ala	Glu	Gln	100	105	110
Ala	Leu	Thr	Asp	Ser	Gly	Leu	Glu	Ile	Thr	Glu	Gln	Asn	Ala	Thr	Arg	115	120	125
Ile	Gly	Thr	Ala	Ile	Gly	Ser	Gly	Ile	Gly	Gly	Leu	Gly	Leu	Ile	Glu	130	135	140
Gln	Asn	Val	His	Ser	Phe	Val	Lys	Gly	Gly	Ala	Arg	Lys	Val	Ser	Pro	145	150	155
Phe	Phe	Val	Pro	Ala	Thr	Ile	Val	Asn	Met	Val	Ala	Gly	His	Val	Ser	165	170	175
Ile	Arg	Asn	Asn	Leu	Lys	Gly	Pro	Asn	Ile	Ala	Ile	Ala	Thr	Ala	Cys	180	185	190
Thr	Ser	Gly	Thr	His	Cys	Ile	Gly	Gln	Ser	Ala	Arg	Met	Ile	Ala	Tyr	195	200	205
Gly	Asp	Ala	Asp	Val	Met	Val	Ala	Gly	Gly	Ala	Glu	Lys	Ala	Ser	Thr	210	215	220
Glu	Met	Gly	Leu	Ala	Gly	Phe	Gly	Ser	Ala	Lys	Ala	Leu	Ser	Thr	Arg	225	230	235
Asn	Asp	Asp	Pro	Gln	Lys	Ala	Ser	Arg	Pro	Trp	Asp	Lys	Asp	Arg	Asp	245	250	255
Gly	Phe	Val	Leu	Gly	Asp	Gly	Ala	Gly	Val	Leu	Val	Met	Glu	Glu	Tyr	260	265	270
Glu	His	Ala	Val	Ala	Arg	Gly	Ala	Thr	Ile	Tyr	Ala	Glu	Leu	Ala	Gly	275	280	285
Phe	Gly	Met	Ser	Gly	Asp	Ala	Phe	His	Met	Thr	Ser	Pro	Pro	Glu	Asp	290	295	300
Gly	Ala	Gly	Ala	Ala	Leu	Ser	Met	Asn	Asn	Ala	Ile	Ala	Asp	Ala	Gly	305	310	315
Ile	Thr	Ala	Asp	Lys	Val	Gly	Tyr	Val	Asn	Ala	His	Gly	Thr	Ser	Thr	325	330	335
Pro	Ala	Gly	Asp	Lys	Ala	Glu	Thr	Ala	Ala	Val	Lys	Ser	Val	Phe	Gly	340	345	350
Glu	His	Ala	Tyr	Thr	Leu	Ala	Val	Ser	Ser	Thr	Lys	Ser	Met	Thr	Gly	355	360	365
His	Leu	Leu	Gly	Ala	Ala	Gly	Ala	Ile	Glu	Ala	Ile	Phe	Thr	Ile	Leu	370	375	380

Ala Leu Lys Asp Gln Ile Leu Pro Pro Thr Ile Asn Leu Glu Asn Pro
385 390 395 400

Ser Glu Gly Cys Asp Leu Asp Tyr Val Thr Asp Gly Ala Arg Pro Val
405 410 415

Asn Met Glu Tyr Ala Leu Ser Asn Ser Phe Gly Phe Gly Gly Thr Asn
420 425 430

Gly Ser Leu Leu Phe Lys Lys Ala Asp
435 440